Coating Benih dengan Agen Hayati untuk Meningkatkan Pertumbuhan dan Hasil Tanaman Padi

Seed Coating with Biological Agent to Increace Plant Growth and Yield of Rice

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ABSTRACT

Seed quality is an important factor in rice production. Bacterial leaf blight (BLB) caused by Xanthomonas oryzae pv. oryzae (Xoo) is a seedborne disease of rice that cause serious yield losses in Indonesia. Experiments were conducted at the Laboratory of Rice Research Babakan, IPB, Bogor; Laboratory of Seed Science and Technology at IPB, Bogor; and the Laboratory of Seed PT. EWSI, Purwakarta, from April to August 2011. The objective of this research was to determine the effectiveness of coating Xoo contaminated rice seeds with biological agents on plant growth and crop yield. The experiments were arranged in a randomized complete block design with one factor (seed coating treatment),i.e. T_0 = negative control, healthy seed; T_1 = positive control, the seeds contaminated with Xoo; T_2 = P. diminuta A6 and B. subtilis 5/B; T_3 = alginate 3% + 1% peat + P. diminuta A6 and B. subtilis % 5/B; T_4 = arabic gum 3% + 1% gypsum + P. diminuta A6 and B. subtilis 5/B; T_5 = CMC 1.5% + 1% talc + P. diminuta A6 and B. subtilis 5/B, and T_6 = bactericide streptomycin sulfat 4%. The results showed that seed coating treatment with with 3% alginate + 1% peat + P. diminuta A6 + B. subtilis 5/B was the best treatment based on the percentage of full and empty grain weight per panicle, and the percentage of number of full and empty grains per panicle.

Keywords: biological agent, coating, rice seeds, Xoo

ABSTRAK

Mutu benih merupakan faktor penting dalam produksi padi. Penyakit hawar daun bakteri yang disebabkan oleh bakteri Xanthomonas oryzae pv. oryzae (Xoo) merupakan penyakit terbawa benih pada padi yang dapat menyebabkan kehilangan hasil panen yang serius di Indonesia. Percobaan telah dilaksanakan di Laboratorium Lapangan Riset Padi Babakan, IPB, Bogor; Laboratorium Ilmu dan Teknologi Benih, IPB, Bogor; dan Laboratorium Benih PT. East West Seed Indonesia (EWSI), Purwakarta, mulai April sampai Agustus 2011. Tujuan penelitian ini adalah untuk mengetahui efektivitas pelapisan benih padi terkontaminasi Xoo dengan agen hayati terhadap pertumbuhan dan hasil tanaman. Percobaan disusun berdasarkan rancangan kelompok lengkap teracak satu faktor (perlakuan seed coating), terdiri atas 7 taraf: T_0 = kontrol negatif; T_1 = kontrol positif terkontaminasi Xoo; T_2 = P. diminuta A6 dan B. substilis 5/B; T_3 = alginat 3% + gambut 1% + P. diminuta A6 dan B. substilis 5/B; T_4 = arabic gum 3% + gipsum 1% + P. diminuta A6 dan B. substilis 5/B; T_5 = CMC 1.5% + talc 1% + P. diminuta A6 dan B. substilis 5/B; T_6 = bakterisida streptomycin sulfat 4%. Hasil penelitian menunjukkan bahwa perlakuan seed coating dengan alginat 3% + gambut 1% + P. diminuta A6 dan B. subtilis 5/B merupakan perlakuan terbaik berdasarkan persentase bobot gabah bernas dan hampa per malai, serta persentase jumlah gabah bernas dan hampa per malai.

Kata kunci: agen hayati, benih padi, coating, Xoo